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ABSTRACT

This study investigated the limitation of using only achievement test batteries to identify and place academically underprepared students, and suggests curriculum innovations to deal more adequately with the problem. Ninety students at Daytona Beach and Santa Fe junior colleges provided data by completing a series of physical, psychological, and achievement tests. These students were grouped according to their performance on the Florida Twelfth Grade Test, an achievement test often used by state junior colleges to determine student needs for compensatory education. Collectively, these tests led to the identification of the academically unprepared students' characteristics, and indicated that--based on IQ, personality profile, and socioeconomic status variations--this group of students was far from homogeneous. The significant differences in IQ (measured by the Wechsler Adult Intelligence Scale), and the similarity in range of intellect among both high and low scoring groups on the achievement test lend support to the notion that some students relegated to remedial groups do in fact have the intellectual ability to handle college work. Results of the Minnesota Multiphasic Personality Inventory, however, indicate that some students who possess the IQ nevertheless score poorly on the achievement tests because they are to some degree emotionally disturbed. Physical conditions (as determined by eye, ear, and blood tests) did not reveal differences on which to base new approaches. (JO)

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A PILOT STUDY RELATED TO IDENTIFICATION, PLACEMENT, AND CURRICULUM DEVELOPMENT FOR ACADEMICALLY UNDERPREPARED STUDENTS IN FLORIDA JUNIOR COLLEGES

NDEA SPECIAL PROJECT NO. 03-68-74-18

Submitted Through Task Force on Testing for State of Florida

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Miami-Dade Junior College

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Ann Bromley, Santa Fe Junior College
Ivie Burch, Gulf Coast Junior College
Willard Field, Daytona Beach Junior College
Lee G. Henderson, State Department of Education
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John McQuitty, University of Florida
J. B. Sutton, Santa Fe Junior College
Emerson Tully, Office of the Board of Regents

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UNIVERSITY OF CALIF.
LOS ANGELES

SEP. 14 1970

CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION

August, 1969

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Dr. Robert Boldt and Dr. George Barton from Educational Testing Service, and Dr. Robert Stoltz and Mr. Dan Beshara from College Entrance Examination Board, provided ideas during the initial planning.

Dr. William Schildecker at Halifax District Hospital most graciously consented to take blood samples from Daytona Beach Junior College students, and personnel from the J. Hillis Miller Health Center at the University of Florida provided the same service at Santa Fe Junior College.

The consultants, Dr. A. Garr Cranney, Dr. Richard E. Gordon, Dr. Maurice L. Litton, and Dr. Paul Satz, were a significant and positive force in the planning, implementation, and data analysis of the study.

Particular credit is due to Mrs. Patricia Baker for her valuable contribution in editing and typing the manuscript.

Finally, grateful acknowledgement and since thanks are given to the students who consented to participate in this study.

BACKGROUND

In the fall of 1966, the Task Force on Testing for the State of Florida was created by Dr. James Wattenbarger, the Associate State Superintendent for Junior Colleges.* The charge of the Task Force was to investigate present practices in the field of junior college testing and to make recommendations for more efficient and effective measures, if needed.

The membership of the Task Force was as follows:

Dr. Eugene W. Schoch, Chairman
State Department of Education**

Miss Rose Mary Ammons
St. Petersburg Junior College

Dr. Ann Bromley
Santa Fe Junior College

Mr. Ivie Burch
Gulf Coast Junior College

Mr. Willard Field
Daytona Beach Junior College

Dr. Lee G. Henderson
State Department of Education

Dr. John Losak
Miami-Dade Junior College

Dr. John McQuitty
University of Florida

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*Dr. Wattenbarger is now Director of the Institute for Higher Education at the University of Florida and Dr. Lee Henderson is Associate Superintendent for Junior Colleges.

**Dr. Schoch left the State Department of Education in September of 1968 to accept a teaching position at the University of Tennessee.

Dr. J. B. Sutton
Santa Fe Junior College

Dr. Emerson Tully
Office of the Board of Regents

It soon became apparent to the Task Force members that one of the limitations of the present batteries of tests most widely used in Florida public junior colleges was that the batteries were essentially traditional achievement-type in nature and that additional information was important for more effective educational planning for junior college students. More specifically, the greatest testing need appeared to be for those students admitted to the junior college who for a variety of reasons were academically underprepared for college-level work. Concern for these students is nationwide and is expressed in such publications as those of Roueche[1] and Schenz[2].

The Task Force members addressed themselves to the question of how testing procedures might best be brought to bear on the problem of the academically underprepared junior college student. It was decided to form a subcommittee to consult with Educational Testing Service and College Entrance Examination Board representatives to further explore this matter. The subcommittee consisted of Dr. Eugene Schoch, Dr. John Losak, and Mr. Willard Field, who went to Princeton in June, 1967 for a two-day meeting.

It was decided at this meeting that the problem was one which deserved immediate attention through the avenue of a descriptive research project, the primary purpose of which would be to objectively describe

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[1]John E. Roueche, Salvage, Redirection, or Custody? (Washington, D.C.: American Association of Junior Colleges, 1968).

[2]Robert F. Schenz, "What Is Being Done For Low-Ability Students?" Junior College Journal, Vol. 34 (1964), pp. 22-27.

the characteristics of those students who come to the open-door public junior college academically underprepared. It was acknowledged that most, if not all, remedial programs treated the bottom ten or fifteen or twenty percent of the student population as a homogeneous group who were designated to receive the same type of remedial treatment.

The basic assumption made by the Task Force and by the consultants from Educational Testing Service and College Entrance Examination Board was that the academically underprepared students do not form a homogeneous group, and further, that a test battery could be administered to a selected sample so as to demonstrate this lack of homogeneity. Another primary assumption was that there would probably evolve a few subgroupings of students with similar characteristics within the overall low-achievers so that meaningful educational programs could conceivably be proposed for each subgroup.

In a sense, this consideration of potential subgroups within the overall group of academically underprepared students is a compromise between a position now employed which treats all students in this group alike and the opposite of that position which would be to devise a unique educational program for each individual student in the academically underprepared group. Though it may be ideally the case that each individual should have a uniquely tailored program, the Task Force recognized that education is far from such a goal, and that the most feasible approach appeared to be a reasonable number of pedagogical treatments applied to a reasonable number of <u>empirically defined</u> subgroupings.

It was to the task of devising a research project to empirically define such subgroupings that the subcommittee of Eugene Schoch, John Losak, and Willard Field directed its efforts. In January of 1968, the

proposal submitted by John Losak, Principal Investigator, and Eugene Schoch, Research Assistant for the Project, was approved by the State Department of Education in the amount of $16,731.

One of the first steps taken after approval of the grant request was to secure the advice of several consultants. The Task Force modified the design of the project and the test battery to be used following consultation and is indebted to the following persons for their consultant services:

Dr. A. Garr Cranney
Department of Reading
University of Florida

Dr. Richard E. Gordon
Department of Psychiatry
University of Florida

Dr. Maurice L. Litton
Department of Higher Education
Florida State University

Dr. Paul Satz
Department of Clinical Psychology
University of Florida

PROBLEM

The basic problem under consideration in the study was how the application of testing principles and tools could provide a basis for a more meaningful educational experience for those students who come to Florida's public junior colleges academically underprepared for college-level functioning as measured by standardized achievement tests. There is quite general agreement among the persons in the field of student personnel work that the curricula differ among colleges in the state of Florida, but within any given institution, whatever curriculum is offered for one student is offered all of them alike (notwithstanding attempts at individualized teaching).

OBJECTIVES

1. To identify as carefully as possible, in selected junior colleges within the state of Florida, the characteristics of that group of students enrolled in programs which are variously referred to as guided studies, directed studies, basic studies, etc.

2. To demonstrate empirically a lack of homogeneity among this guided studies group on the characteristics identified in Objective 1.

3. To demonstrate the feasibility of developing hypotheses related to curriculum innovations appropriate to the physical, psychological, and academic characteristics of this population.

PROCEDURES

Santa Fe Junior College and Daytona Beach Junior College were selected to administer the tests for this study. Dr. Ann Bromley, Assistant to the President for Research and Development, and Mr. Willard Field, Director of Student Personnel Services, coordinated the testing efforts on their respective campuses. These colleges provide diversified curriculum offerings in college parallel, technical, and vocational programs, and each has an open-door philosophy which does not restrict initial enrollment of any high school graduate.

Two groups were devised--a so-called experimental group of students who had Total scores of 171 or below on the Florida Twelfth Grade Test (FTG)*, and a comparison group of students who had Florida Twelfth Grade Test Total scores of 181 and above. It should be stressed that there was no treatment as such given to the experimental group, so that these groups were in a sense neither experimental nor control, but rather were operationally defined on the basis of a pre-determined Total score on the Florida Twelfth Grade Test. Throughout the study, the group of students scoring 171 and below is referred to as the academically underprepared group.

The initial goal was to obtain 50 students from each of the two junior colleges, but for a variety of reasons the final N was 90, with

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*The Florida Twelfth Grade Test consists of five subtests--Aptitude, English, Mathematics, Social Science, and Natural Science. Each is reported in percentile form, and the Total score is a summation of the five subtest percentiles.

40 students from Santa Fe Junior College and 50 students from Daytona Beach Junior College. Students for the experimental group were solicited on the basis of a letter sent to those freshmen who scored at or below 175 Total on the Florida Twelfth Grade Test. Participants for the comparison group were obtained through the reading of an announcement asking for volunteers from students enrolled in the freshman English course. The first 50 volunteers for each group were selected for participation in the study. Copies of the letter and announcement are contained in the Appendix.

On October 1, 2, and 3, 1968, the testing was conducted at Daytona Beach Junior College. Testing at Santa Fe Junior College took about five days during the first 2 weeks of November. Dr. Paul Satz and Dr. Garr Cranney, Consultants to the Task Force, had trained psychological assistants who were assigned to do the actual testing under the supervision of the consultants. The test battery as finally decided upon with the aid of the consultants consisted of:

1. Wechsler Adult Intelligence Scale
2. Spache Diagnostic Reading Test
3. Tri-Tone Audiometry
4. Eye tests
5. Minnesota Multiphasic Personality Inventory
6. Blood sample
7. Junior College Questionnaire
8. Comparative Guidance and Placement Program, Core Battery

The first five tests were administered by the psychological assistants. The Junior College Questionnaire and the Comparative Guidance and Placement Program were administered by College personnel, and the blood samples were taken by two medical doctors.

RESULTS

Dr. Paul Satz served as consultant to the Task Force for the purpose of data compilation and statistical analysis. The analysis proceeded on the basis of three groups separated on their Florida Twelfth Grade Test (FTG) Total Score as follows in Table 1.

TABLE 1

DISTRIBUTION OF POPULATION ON FTG TEST

	FTG Total Score	Mean	N
Group I	000-171*	90	40
Group II	181-292	244	23
Group III	304-422	354	27

The data are based on students enrolled at both Daytona Beach Junior College and Santa Fe Junior College.

Table 2 summarizes the data from the Wechsler Adult Intelligence Scale (WAIS) and the Florida Twelfth Grade Test (FTG). Aside from statistical differences on test scores which are provided in Table 2, the most obvious factor with respect to the total population is that only two Negroes were in Groups II and III combined, while 24 Negroes were in Group I. To some extent, such a skewed distribution is a limitation on the applicability of these findings.

*Although letters were mailed to those who scored 175 and below, no students in the study had scores between 171 and 175.

TABLE 2

DISTRIBUTION OF WAIS AND FTG RESULTS

	Group I N=40	Group II N=23	Group III N=27
Age	19.15	18.86	18.85
WAIS Verbal I.Q.	98.33	109.83	114.70
WAIS Performance I.Q.	103.05	111.22	112.15
WAIS Full Scale I.Q.	100.28	111.04	114.37
Mean Deviation	4.65	1.39	2.56
FTG Total Score	89.90	244.35	354.44

Overall summary data are provided in Tables 3, 4, and 5 of significant differences by total group and by sex. Summary tables for each test are provided in the Appendix.

TABLE 3

SUMMARY OF SIGNIFICANT F BY GROUPS

Variables	Group Means I	II	III	F	T-Tests/Groups I, II	I, III	II, III
Father's education level	2.40[1]	3.25	3.57	4.57	<.05	<.01	NS[2]
WAIS Verbal I.Q.	98.3	109.8	114.7	45.25	<.05	<.01	<.05
WAIS Performance I.Q.	103.0	111.2	112.1	7.46	<.01	<.01	NS
WAIS Full Scale I.Q.	100.2	111.0	114.3	36.17	<.01	<.01	NS
MMPI Depression Scale	50.8	46.3	46.1	3.56	<.05	<.05	NS
MMPI Ego Strength Scale	47.0	49.0	53.4	3.27	NS	<.05	NS
Creatinine	.99	.85	.91	3.58	<.05	NS	NS

[1]This number was obtained by compiling the average response number for the related item on the Junior College Questionnaire, a copy of which is contained in the Appendix.

[2]Not significant

Table 3 indicates that seven factors discriminate among the groups. Moreover, the only factor on which Groups II and III differed significantly was WAIS Verbal I.Q. For all practical purposes, there are just two empirically meaningful groups--Group I alone and Groups II and III combined. This fact provides empirical substance for a meaningful separation of groups at about 170 Total score on the Florida Twelfth Grade Test.

TABLE 4

SUMMARY OF SIGNIFICANT F BY GROUPS BY SEX (FEMALES)

Variables	Group Means I	II	III	F	T-Tests/Groups I, II	I, III	II, III
Father's education level	1.82[1]	3.70	3.50	6.20	<.01	<.01	NS[2]
Estimated income	2.32[1]	4.65	3.96	7.23	<.01	<.01	NS
Composite[3]	6.59[1]	11.65	10.61	8.64	<.01	<.01	NS
WAIS Verbal I.Q.	96.8	106.3	115.9	30.06	<.01	<.01	<.01
WAIS Performance I.Q.	102.1	110.0	113.0	4.12	NS	<.01	NS
WAIS Full Scale I.Q.	99.0	108.1	115.5	20.87	<.01	<.01	<.05

[1]This number was obtained by compiling the average response number for the related item on the Junior College Questionnaire, a copy of which is contained in the Appendix.

[2]Not significant

[3]The composite category is an averaging of the three categories of father's education level, mother's education level, and estimated income.

TABLE 5

SUMMARY OF SIGNIFICANT F BY GROUPS BY SEX (MALES)

Variables	Group Means I	II	III	F	T-Tests/Groups I, II	I, III	II, III
Estimated income	2.5[1]	4.4	4.8	7.86	<.01	<.01	NS[2]
Composite[3]	7.9[1]	9.9	12.0	5.72	NS	<.01	NS
WAIS Verbal I.Q.	99.4	113.0	112.9	21.30	<.01	<.01	NS
WAIS Performance I.Q.	103.7	112.2	110.8	3.40	<.01	NS	NS
WAIS Full Scale I.Q.	101.2	113.6	112.7	18.80	<.01	<.01	NS
Creatinine	1.1	.94	.99	3.45	<.05	NS	NS

[1]This number was obtained by compiling the average response number for the related item on the Junior College Questionnaire, a copy of which is contained in the Appendix.

[2]Not significant

[3]The composite category is an averaging of the three categories of father's education level, mother's education level, and estimated income.

As can be seen from the male-female breakdown in Tables 4 and 5, it is the females who show the significant differences with respect to Verbal I.Q. and also Full Scale I.Q. as measured by the WAIS.

DISCUSSION

It is evident from the results of this study that there are many qualitative differences between those students who score at various levels on the Florida Twelfth Grade Test. Two distinct groups emerged--those with a Florida Twelfth Grade Test Total score of 171 and below (Group I of this study), and those with a Total score above 181 (Groups II and III of this study).

Assessing each group with respect to intellectual ability, the data support the position that there are significant differences in I.Q., as has been amply demonstrated previous to this study. What has not been emphasized is that the range of intellect among the low test scorers is about as large as for the high scorers on achievement tests. The data from this study support the position that many of the students relegated to guided studies groups do, in fact, have the intellectual ability to handle college-level work. They have scored low on the Florida Twelfth Grade Test for reasons other than lack of ability.

One of the reasons is that many of these academically under-prepared students show patterns of emotional disturbance. The results of the Minnesota Multiphasic Personality Inventory for those students who scored above Average on the Wechsler Adult Intelligence Scale, but 171 or below on the Florida Twelfth Grade Test, indicate a high incidence of elevated clinical scales, suggesting a correspondingly high incidence of psychopathology. The implication for educational planning in this case appears clear enough: some resolution of the conflicts

giving rise to the elevated MMPI scales is necessary in order for the student to function at a level in college that is more in accord with his intellectual potential.

The results from the blood samples were not discriminating either within or among groups or by sex or race. Dr. Richard Gordon, one of the consultants for this study whose previous work on the effects of uric acid and achievement[1] suggests a relationship between the two, summarized his analysis this way: "The uric acid group mean (composite of Groups I, II, and III) is higher than in any other group evaluated in any of my studies, but not yet at a pathological level. This remains an area for further research."

Patterns of elevated scales on the MMPI suggested a quality of psychological maladjustment in Group I that is different from that found in Groups II or III. The sheer incidence of MMPI profiles with so much suggested personal maladjustment indicates that different techniques are needed to cope with the academically underprepared.

Objective 1 of this study was to identify characteristics of the academically underprepared student. This has been accomplished through the use of a variety of testing instruments, the analysis of which leads directly to the fulfillment of Objective 2 which was to demonstrate a lack of homogeneity among this group. The range of I.Q. scores, the variation in MMPI profiles, and the differences of socio-economic status by race within the academically underprepared group (Group I) clearly show that such a group is far from homogeneous.

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[1]Richard E. Gordon, Richard H. Lindeman, and Katherine K. Gordon, "Some Psychological and Biochemical Correlates of College Achievement," Journal of the American College Health Association, Vol. 15, Number 4 (April, 1967), pp. 326-331.

The third objective set forth in this pilot study was to demonstrate the feasibility of developing hypotheses related to curriculum innovations appropriate to the physical, psychological, and academic characteristics of academically underprepared students. Hypotheses with respect to the physical characteristics cannot be set forth inasmuch as there were no discernable differences in the blood analysis, eye tests, or ear tests within Group I or between Group I and the other two groups. It would appear at this time that the physical characteristics as measured do not have direct implications for curriculum planning.

The psychological characteristics most carefully evaluated were those of intelligence as measured by the Wechsler Adult Intelligence Scale and psychological adjustment as measured by the Minnesota Multiphasic Personality Inventory. Intelligence test scores from an individually administered test do suggest hypotheses for curriculum planning. First, many students presumed not to have the intelligence needed for higher education do in fact have such ability, and special attempts at curriculum innovations in the junior college for those students who are bright but low achievers should be initiated. This is obviously nothing new in curriculum development, but educators frequently need reminders of what is already known. Moreover, these data are on a junior college population and derived not from a group intelligence test, inherently so dependent upon reading, but from an individually administered test.

The students who have several elevated scales on the Minnesota Multiphasic Personality Inventory present another distinct group who need to have a curriculum designed with respect to their particular

liability. The high incidence of psychological maladjustment as indicated by elevated MMPI scales places considerable emphasis on the need for junior colleges to provide psychological services to students as an integral part of the overall curriculum.

Another distinct subgroup are those students who demonstrate an intellectual level that will probably not permit them to succeed in most established curriculums in higher education. This student may be (in fact, usually is) highly motivated but finds little success. The junior college clearly has a need for specific curriculum planning for this type of student. Just falling back on the cliche of "Place him in a technical program" has not worked in the past, and cannot be expected to work in the future. It does not work for several reasons, not the least of which is that the research available, as in the study by Lunneborg and Lunneborg[2], indicates that the same battery of tests usually predicts as well to the technical areas as to the academic areas. Moreover, many two-year technical programs require about the same level of intelligence as college parallel programs.

The results of this study further support the position that the use of only achievement-type tests narrowly circumscribes the academically underprepared group and fails to distinguish among the many subgroups. It has been demonstrated that individual tests such as those used in this study can discriminate among the guided studies group and are feasible to administer. Whether it is feasible to test students individually on a large-scale basis is essentially a question

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[2]Clifford E. Lunneborg and Patricia W. Lunneborg, "Predicting Success in Community College Vocational Courses," Journal of Counseling Psychology, Vol. 16, No. 4 (July, 1969), pp. 353-357.

of economics. On the one hand, the initial cost of such differential diagnosis will be high, and this must be weighed against the cost of the predictable ineffectiveness of an instructional program which does not take into account such individual differences. While the cost of individual testing is easily calculated, the cost of wasted time and effort on the part of the instructor and student is quite difficult to measure. It is suggested that an important area for future research would focus on the problem of total cost analysis of a remedial program using both approaches simultaneously.

New programs, concepts, and approaches are needed for the academically underprepared students. Different end goals for the various subgroups must be established. Only a handful of those students entering the junior college academically underprepared may be expected to be "remediated" in the traditional sense. The others must have available to them different experiences and goals provided by a curriculum that is relevant to them as individuals.

DAYTONA BEACH JUNIOR COLLEGE
STUDENT SERVICES DIVISION
September 16, 1968

Dear Student:

Daytona Beach Junior College is constantly searching for new and creative means to improve our educational program. One of the most important sources for improvement is through the efforts of research.

During the Fall Term of 1968 we will be conducting what we believe to be an important piece of research, but no practical educational research can be effectively conducted without the full cooperation of students.

The results of the research will be handled so that it will be impossible for any one person ever to be identified. Your record here at Daytona Beach will in no way be affected by your performance in the research project. This can be a real contribution on your part to the advancement of scientific educational research.

Your contribution to the research effort will consist of the following:

1. Some tests to determine attitudes, opinions, motivations, goals, performance.
2. An audiometer (hearing) test.
3. An eye test.
4. A blood sample.

The first 3 will be conducted on an individual basis by clinical psychologists from the University of Florida. The blood sample will be taken by a Registered Nurse.

Twenty-five volunteers are needed and will be selected from those who apply. Your instructors have agreed to give participants credit for an "extra credit" project in connection with your psychology course work.

If you desire to participate, complete the form attached and deliver it, together with the parental approval statement, if you are under 21, to Mrs. Tuller, Room 129, Collins Hall, not later than Thursday, September 19, 1968.

Sincerely,

Willard E. Field

Willard E. Field
Director of Student Services

Director, Student Services Division
Daytona Beach Junior College
Daytona Beach, Florida

I understand the value of organized research and I agree to participate. I understand that my anonymity will be protected, that I will be assigned a numerical designation, and that my name will not be associated in any way with the data collected for the research.

I understand that after I have participated I will be furnished with a statement to this effect which I can present to the appropriate instructor as evidence of completion of an "extra credit" assignment. I do not object to undergoing psychological testing, visual and audio testing, or the furnishing of a blood sample to qualified medical personnel. Insofar as I know, there is no physical reason why the furnishing of a blood sample should be harmful to me.

_____
Signature

_____
(PRINT) Student name and number

_____
Date

Parental Approval
(For Student Under 21)

I have read the statement signed by my son/daughter/ward above and I give my consent to his/her participation in research during the month of October, 1968.

_____
Signature of parent or guardian

_____
Date

(Parent or Guardian: If additional information or clarification is desired prior to giving approval, call Mr. Field, 255-1476).

APPENDIX

DAYTONA BEACH JUNIOR COLLEGE

MEMO TO Mr. J. Griffen Greene

FROM: Willard Field

SUBJECT: Organized Research

DATE: September 16, 1968

It is requested that the following announcement be made to all PSY 91 and 92 classes Monday and Tuesday, September 16 and 17, 1968. In classes missed on Monday, the announcement can be made on Wednesday, September 18.

"Daytona Beach Junior College and Santa Fe Junior College are cooperating in a research project of the State Department of Education. As you know, meaningful educational research can only be conducted with the cooperation of students who are willing to furnish data on which meaningful conclusions can be based.

Mr. Field, the Director of Student Services, is looking for 25 volunteers. In many colleges students of psychology are <u>required</u> to participate in such projects in order to better understand how the scientific method can be applied to the learning process.

For those of you who volunteer and are selected, your instructor has been authorized to give you credit for an "extra credit" assignment toward your overall semester grade.

If you are interested, you can read the details in a letter from Mr. Field which you can pick up at the end of the hour before you leave the room."

APPENDIX

TABLE 1

COMPARISON OF MMPI DATA BY GROUPS

MMPI Scales	T-Scores/Groups I N=38	II N=23	III N=27
?	4.42	0.00	0.00
L	50.82	46.35	46.19
F	60.24	57.78	59.78
K	51.32	48.52	50.78
Hs	54.58	53.13	52.26
D	56.21	55.52	52.22
Hy	54.84	57.61	55.85
Pd	64.53	61.22	59.52
Mf	56.76	55.78	51.93
Pa	57.03	57.78	56.56
Pt	62.84	64.57	57.89
Sc	66.50	65.78	64.07
Ma	67.50	67.00	65.78
Si	54.76	52.74	50.78
ES	47.08	49.09	53.08
A	54.24	57.48	50.81
R	48.26	43.87	44.22

APPENDIX

TABLE 2

FREQUENCY OF VISUAL DISTURBANCES BY GROUP
(Using Titmus Optical Instruments)

	Group I N=40	Group II N=23	Group III N=27
Far Lateral Phoria	3	3	3[1]
Far Vertical Phoria	1	1	1[1]
Color	0	1	0
Near Lateral Phoria	4	3	2[1]
Near Vertical Phoria	2	0	1[1]
Acuity:			
Far: Right Eye	3	2	0[2]
Far: Left Eye	1	2	1[1,2]
Near: Right Eye	2	1	0[2]
Near: Left Eye	0	1	0[1,2]

[1]One subject blind in left eye, unable to perform. Total does not include him.

[2]One subject lost in computer run-off, N=26.

APPENDIX

TABLE 3

INCIDENCE OF HEARING LOSS BY GROUPS
(all losses are high frequency)

	Group I	Group II	Group III
Right Ear	1	1*	1
Left Ear	1	1*	0

*Subject had bilateral loss--only one person involved.

TABLE 4

MEAN BLOOD ANALYSES BY GROUPS

	Group I N=31	Group II N=15	Group III N=18
Glucose (65-110)	95.45	97.93	92.56
Blood Uria Nitrogen (8-18)	13.16	13.67	14.67
Creatinine (.6-1.2)	.9903	.8467	.9056
Uric Acid (2.5-7.8	5.45	4.89	5.68
Cholesterol (130-230)	168.50	172.09	157.40

APPENDIX

TABLE 5

BLOOD ANALYSES: FREQUENCY OF VALUES DEVIANT FROM NORMAL

	Group I N=31	Group II N=15	Group III N=18
Glucose	3 (111-126)	4 (60, 112-144)	1 (120)
Blood Uria Nitrogen	2 (7-21)	1 (20)	1 (24)
Creatinine	5 (1.3-1.4)	0	0
Uric Acid	3 (8.1-9.6)	0	0
Cholesterol	3 (102, 260, 128)	2 (126, 231)	3 (88-126)

Survey of Characteristics of College Students Entering Freshmen and Transfer Undergraduates

JUNIOR COLLEGE QUESTIONNAIRE

PURPOSE: As you enter this junior college, we are asking you to furnish information about yourself, your plans, and your educational background. Information obtained from you and the other students who are now entering the junior college will help provide data to support long-range educational planning both on a state-wide basis and within this junior college.

This instrument is a questionnaire, not a test. Even so, we ask your cooperation in marking the answer sheet carefully, so that your responses will contribute to an accurate overall picture of this entering group. Although we have great interest in the broad description of the total group of new students that this questionnaire will yield, there will be no published report of your responses as an individual.

Follow directions on the answer sheet for marking your responses.

1. Sex
   1. Male
   2. Female

2. Age last birthday
   1. 18 or under
   2. 19
   3. 20
   4. 21
   5. 22
   6. 23 to 25
   7. 26 to 30
   8. Over 30

3. What is the highest grade level of your father's education?
   1. Completed eighth grade or less
   2. Some high school but did not graduate
   3. Completed high school
   4. Completed at least two years of college
   5. Received a bachelor's degree
   6. Completed professional training (Law, Medicine, Dentistry, etc.)
   7. Did post-graduate study

4. What is the extent of your mother's education?
   1. Completed eighth grade or less
   2. Some high school but did not graduate
   3. Completed high school
   4. Completed at least two years of college
   5. Received a bachelor's degree
   6. Completed professional training (Law, Medicine, Dentistry, etc.)
   7. Did post-graduate study

5. What is the best estimate of your family annual income?
   1. Below $3,000
   2. $3,000 to $4,999
   3. $5,000 to $6,999
   4. $7,000 to $9,999
   5. $10,000 to $14,999
   6. $15,000 to $20,000
   7. Above $20,000

6. Approximately what proportion of the costs of obtaining a college education must come from the family income?
   1. None
   2. 1% to 25%
   3. 26% to 50%
   4. 51% to 75%
   5. More than 75%

7. In your efforts to gain admission to a college or university, to how many institutions did you submit applications for admission?
   1. One (If your answer is one, skip to question 9)
   2. Two
   3. Three
   4. Four
   5. More than four institutions

8. If you applied to more than one college or university, this junior college that you are now entering represents your
   1. first choice
   2. second choice
   3. third choice
   4. fourth choice or more

9. Which one of the following reasons was the most important in shaping your decision to enter this junior college? (Make only <u>one</u> response to this item.)
   1. Inexpensive
   2. Close to home
   3. Friends were to attend here
   4. General academic reputation
   5. Strong program in intended major
   6. Financial aid opportunities
   7. General impression of campus and students
   8. Opportunity for independent study
   9. I think I can succeed here
   10. Other reason

10. Are you entering the junior college directly from high school, or has there been an intervening period during which you attended another college, served in the Armed Forces, etc.?
    1. Entered here directly from high school (Skip to Item 12)
    2. Transferred directly from a four-year college or university (Now answer Item 11)
    3. Transferred directly from another two-year college (Now answer Item 11)
    4. Was in the military service most of the time between leaving high school or college and entering this university. (Skip to Item 12)
    5. Worked for a year or more between leaving high school or college and entering this junior college. (Skip to Item 12)

11. If in answering question 10 above, you indicated that you are a transfer student by choosing 10 (2) or 10 (3), refer to the college and university code, page 3, find the institution that you last attended, enter its code numbers in the allotted boxes, and then blacken the three numbers in the appropriate spaces.

12. In which one of the following services are you primarily interested in receiving help while enrolled here?
    1. Career information
    2. Study skills
    3. Reading skills
    4. Health information
    5. Your personality
    6. Sex education
    7. Religious education
    8. Speech difficulties
    9. Personal problems
    10. Other

13. Class in college
    1. Freshman
    2. Sophomore
    3. Other (special, temporary, etc.)

14. Do you intend to enroll here full-time or part-time?
    1. Full-time
    2. Part-time

15. What type of program are you pursuing?
    1. One leading to the associate degree for transfer to a senior institution (Now answer Item 16)
    2. One leading to a two-year occupational associate degree (Now answer Item 16)
    3. One leading to a planned diploma (Skip to Item 22)
    4. Not enrolled in a planned program of study (Skip to Item 22)
    5. A program other than listed in the ones above (Skip to Item 22)

16. After obtaining your associate's degree do you expect to continue your education in a senior university or college?
    1. Yes, immediately (Now Answer Item 17)
    2. Yes, but not immediately (Now answer Item 17)
    3. Yes, after military service (Now answer Item 17)
    4. No (Skip to Item 22)

17. If you plan to go to a senior university or college, where do you plan to attend?
    1. Florida Agricultural and Mechanical University
    2. Florida Atlantic University
    3. Florida State University
    4. Florida Technological University
    5. University of Florida
    6. University of South Florida
    7. University of West Florida
    8. Other university or college in Florida
    9. Out-of-state university
    10. Foreign university

18. Looking ahead to your entry into a senior university or college, do you have a major field of study in mind?
    1. Yes (Now answer question 19)
    2. No, not even tentatively (Now skip to question 20)

19. If you answered "yes" to question 18, study the list of majors which are listed on this page and page 3. Find the major that best represents your intended field of study, enter its four digit code in the allotted four boxes on the answer sheet, and then blacken in the four numbers in the appropriate spaces, one number to a line. Select a code for one major only. Your selection here will not prevent your changing your plans later.

20. Looking ahead beyond your graduation from a senior university or college, do you plan to do graduate or professional study?
    1. Yes (Now answer Item 21)
    2. No (Skip to Item 22)

21. Which graduate program do you intend to follow?
    1. Master's degree
    2. Doctor's degree (Ph.D., Ed.D.)
    3. Professional study (Law, Medicine, Veterinary Science, Dentistry, etc.)
    4. I plan to do only the graduate work necessary for a teaching credential or license
    5. I plan to enter a graduate program other than those listed above

22. Are you a high school graduate?
    1. Yes, from a Florida high school (Now answer Item 23)
    2. Yes, from an out-of-state high school
    3. Yes, with a high school equivalent diploma or certificate
    4. No

23. If in answering 22 above, you indicated that you are a Florida high school graduate by marking 22 (1), refer to the Florida high school code, insert sheet, find the high school from which you graduated, enter its code number in the allotted boxes and then blacken the three numbers in the appropriate spaces.

Code for Majors

(Refer to this code sheet in answering question 19)

If you answered yes to question 18, study the attached list of majors. Find the major that best represents your intended field of study, enter its four digit code into the allotted four boxes on the answer sheet, then blacken in the four numbers in the appropriate spaces, one number to a line. Select a code number for one major only. Your selection here will not prevent your changing your plans later. Treat zeros as any other digit.

AGRICULTURE
- 0001 Agricultural Business Management
- 0002 Agricultural Economics
- 0003 Agricultural Education
- 0004 Agricultural Extension
- 0005 Agriculture
- 0006 Agronomy
- 0007 Animal Science (Animal Husbandry)
- 0009 Food Science
- 0011 Fruit Crops
- 0015 Ornamental Horticulture
- 0021 Soil Science
- 0024 Veterinary Science
- 0025 Other agriculture major not listed above
- 0100 **ARCHITECTURE**
- 0200 **BASIC STUDIES**
- 0202 *General Education or Basic Studies
- 0203 Humanities

BEHAVIORAL, PHYSICAL, SOCIAL AND APPLIED SCIENCES (Generally, Arts and Sciences)
- 0301 Anthropology
- 0302 Archaeology
- 0303 Area Studies (Latin American, Afro-Asian, etc.)
- 0304 Art
- 0305 Astronomy
- 0306 Bacteriology
- 0307 Biochemistry
- 0308 Biological Sciences
- 0309 Biology
- 0310 Botany
- 0311 Chemical Science
- 0312 Chemistry
  Drama (See 0344)
- 0313 English
- 0314 Entomology
- 0315 Fine Arts
- 0316 Geography
- 0317 Geology
- 0318 Government
- 0319 History
- 0320 Humanities
- 0321 Interdepartmental Program
- 0322 International Affairs/Studies
- 0323 Languages — Classical (Greek; Latin)
- 0324 Languages — Modern
  Library Science (see 1100)
- 0326 Literature
- 0327 Marine Biology
- 0329 Mathematics
- 0331 Meteorology
- 0332 Natural Sciences
- 0334 Philosophy
- 0335 Physics
- 0336 Political Science
- 0337 Psychology
- 0338 Public Administration
- 0339 Religion
- 0340 Social Science
- 0341 Sociology
- 0342 Speech
- 0343 Statistics
- 0344 Theatre Arts
- 0345 Urban Studies
- 0346 Visual Arts
- 0347 Zoology
- 0348 Other A & S majors not listed above

BUSINESS
- 0401 Accounting
- 0402 Administrative Sciences
- 0403 Banking and Finance
- 0404 Business Administration
- 0405 Business Law
- 0406 Business Statistics
- 0407 Economics (General Economics)
- 0408 Finance
- 0410 Hotel and Restaurant Administration
- 0411 Industrial Management
  Industrial Relations (See 0415)
- 0412 Insurance
- 0414 International Business/Trade
- 0415 Labor and Industrial Relations
- 0416 Management
- 0418 Marketing
  Multinational Business Operations (See 0414)
- 0419 Office Administration
- 0420 Personnel Management
  Public Administration (See 0338)
- 0421 Real Estate and Urban Land Studies
  Risk and Insurance (See 0412)
- 0422 Secretarial Science
- 0424 Other business major not listed above

EDUCATION
- 0501 Administration and Supervision
- 0503 Agricultural Education
- 0504 Art Education
- 0505 Business Education
- 0506 Counseling and Guidance
- 0507 College Teaching
- 0508 Early Childhood Education
  Educational Administration (See 0501)
- 0509 Educational Media (Audio-Visual; Television; etc.)
- 0510 Educational Research and Testing
- 0511 Elementary Education
- 0512 English Education
- 0513 Exceptional Child (Special) Education
- 0514 Foreign Language Education
- 0517 Health Education
- 0520 Industrial Arts
- 0521 Language Arts Education
  Library Science (See 1100)
- 0522 Junior College Education
- 0523 K-12 Education
- 0524 Mathematics Education
  Music Education (See 1206-08)
- 0525 Nursing Education
- 0527 Physical Education and Recreation
- 0528 Reading
- 0529 Science Education
- 0530 Secondary Education
- 0531 Social Studies Education (Social Science Education)
- 0532 Teacher Education
- 0533 Technical Education
- 0534 Vocational Education
- 0535 Other Education major not listed above

ENGINEERING
- 0601 Aerospace Engineering
- 0603 Bioenvironmental Engineering
- 0606 Chemical Engineering
- 0607 Civil Engineering
- 0608 Coastal/Oceanographic Engineering
- 0609 Electrical Engineering
- 0610 Electrical Systems
- 0612 Engineering Administration
- 0614 Engineering Science

0616	Industrial Engineering
0617	Industrial Systems
0618	Mechanical Engineering
0619	Metallurgical and Materials Engineering
0620	Nuclear Engineering Science
	Ocean Engineering (See 0608)
0621	Sanitary Engineering
0622	Structures, Materials and Fluid Systems
0623	Systems Engineering
0624	Other Engineering major not listed above
	FORESTRY
0701	Forestry
0703	Wildlife
0800	**HEALTH RELATED PROFESSIONS**
0801	Clinical Psychology
0802	Communicative Disorders
0804	Medical Technology
0805	Occupational Therapy
0806	Physical Therapy
0900	**HOME ECONOMICS**
0901	Clothing and Textiles
0902	Food and Nutrition
0904	Food Service Management
0906	Home Economics Education
	JOURNALISM
1001	Advertising
1004	Broadcasting
1005	Broadcasting; News Sequence
1007	International Communications
1009	Journalism; News Editorial Sequence
1010	Journalism; Public Relations
1011	Mass Communications
1013	Radio and Television
1100	**LIBRARY SCIENCE**
1200	**MUSIC**
1201	Applied Music, Choral
1202	Applied Music, Instrumental
1204	Music (Undesignated)
1206	Music Education
1207	Music Education, Choral
1208	Music Education, Instrumental
1210	Music Theory
1211	Music Therapy
1300	**NURSING**
1400	**PHARMACY**
	PRE-PROFESSIONAL
1501	Pre-Dental
1502	Pre-Law
1503	Pre-Library Science
1504	Pre-Medical
1505	Pre-Optometry
1506	Pre-Theology/Ministerial
1507	Pre-Veterinary Medicine
	SOCIAL WELFARE
1601	Corrections
1603	Criminology and Corrections
1604	Law Enforcement and Police Science
1605	Marriage and Family Living
1606	Marriage Counseling
1607	Social Welfare
1608	Social Work
1700	**VOCATIONAL TECHNICAL TRAINING** (Awarded Technical Diploma)
1701	Electronics
1702	Graphic Arts
1704	Mechanical
1705	Pre-Engineering

Codes for Colleges and Universities

(Refer to this code sheet in answering question 11)

If you selected 10 (2), or 10 (3) as your response to question 10, find the three digit code number for the college or university from which you are transferring, enter the code number in the three boxes on your answer sheet, then grid the numbers by marking in the appropriate spaces on the answer sheet. Treat zeros as any other digit.

Example: Say, for instance, you are transferring from Palm Beach Junior College. Your entries on the answer sheet for question 11 would be as follows:

STATE UNIVERSITIES IN FLORIDA

003 Florida A & M University	153 Florida Technological University	174 University of West Florida
007 Florida Atlantic University	045 University of Florida	
150 Florida State University	147 University of South Florida	

PUBLIC JUNIOR COLLEGES IN FLORIDA

221 Brevard Junior College	318 Junior College of Broward County	386 Polk Junior College
229 Central Florida Junior College	332 Lake City Junior College	410 St. Johns River Junior College
232 Chipola Junior College	334 Lake Sumter Junior College	412 St. Petersburg Junior College, Clearwater
239 Daytona Beach Junior College	346 Manatee Junior College	413 St. Petersburg Junior College, St. Pete.
256 Edison Junior College	350 Miami-Dade Junior College (North Campus)	414 Sante Fe Junior College
268 Florida Junior College at Jacksonville	351 Miami-Dade Junior College (South Campus)	416 Seminole Junior College
270 Florida Keys Junior College	364 North Florida Junior College	419 South Florida Junior College
282 Gulf Coast Junior College	373 Okaloosa-Walton Junior College	424 Tallahassee Junior College
289 Hillsborough Junior College	380 Palm Beach Junior College	446 Valencia Junior College
303 Indian River Junior College	382 Pensacola Junior College	499 Other (not listed above)

PRIVATE COLLEGES AND UNIVERSITIES IN FLORIDA

501 Barry College	559 Florida Memorial College	713 St. Leo College
511 Bethune Cookman College	562 Florida Presbyterian College	715 St. Vincent de Paul
513 Biscayne College	565 Florida Southern College	718 Southeastern Bible College
542 Edward Waters College	610 Jacksonville University	721 Stetson University
544 Embry Riddle Aero Institute	658 New College	739 University of Miami
553 Florida Beacon College	703 Ringling School of Art	742 University of Tampa
556 Florida Institute of Technology	708 Rollins College	757 Webber College
		799 Other (not listed above)

PRIVATE JUNIOR COLLEGES IN FLORIDA

822 Florida College, Temple Terrace	839 Jones College, Orlando	899 Other (not listed above)
838 Jones College, Jacksonville	851 Marymount College	
	860 Orlando Junior College	

OUT-OF-STATE COLLEGES OR UNIVERSITIES

Use code number 999 for any out-of-state college or university, public or private.

OUT-OF-STATE JUNIOR COLLEGES

Use the code number 998 for any out-of-state junior college, public or private.